

REMARKS

Present Status of Application

Claims 1, 3-7, 9-12, 14, 16-20, 22-25 are pending after entry of the amendment. Claims 2, 8, 15 and 21 have been previously cancelled. Claims 13 and 26 have been newly cancelled.

Claims 1 and 14 have been amended to indicate that the carbon nanocapsules are 100 vol%. Support for this limitation can be found in the original claims 13 and 26. Thus, no new matter has been added.

Reconsideration of the application, as amended, is respectfully requested.

Issues under 35 U.S.C. § 103(a)

Claims 1, 3-7, 9-14, 16-20 and 22-26 stand rejected under 35 U.S.C. § 103(a) as being anticipated by Nakamoto, US 2002/0060514 (hereinafter referred to as Nakamoto '514), Ruoff US 5,547,748 (hereinafter referred to as Ruoff '748), Lieber US 6,159,742 (hereinafter referred to as Lieber '742) and Iwamura US 2002/0061397 (hereinafter referred to as Iwamura '397).

Applicants respectfully traverse this rejection.

Claims 13 and 26 have been cancelled, therefore withdrawal of the rejection for these claims is respectfully requested.

Nakamoto '514, Ruoff '748, Lieber '742 and Iwamura '397 fail to disclose that the carbon nanocapsules are 100 vol% in a carbon nanocapsule thin film.

Independent claims 1 and 14 clearly identify that the carbon nanocapsules are 100 vol% in the carbon nanocapsule thin film.

As disclosed in page 3, line 27 to page 4, line 9 and page 5, lines 9-30 of the specification, the charged functionalized carbon nanocapsules are uniformly electroplated onto a substrate to form a carbon nanocapsule thin film and the content of the carbon nanocapsules in the carbon nanocapsule thin film of 100 vol% is achieved by electroplating carbon nanocapsules with purity of 100%. Therefore, a carbon nanocapsule thin film with 100 vol% of carbon nanocapsules is achieved by the carbon nanocapsule thin film preparation method of the invention.

However, as disclosed in paragraph [0064] and figs. 3-5 of Nakamoto '514, during the electroless plating process, the fullerenes or carbon nanotubes for forming the micro-bodies 44 and 48 are precipitated together with the plating material, i.e., the metal plating layers 42 and 46. Moreover, the micro-bodies 44 and 48 and the metal plating layers 42 and 46 are used to form the emitter 26 and the gate projection 28 of a field emission cold cathode device. The metal plating layers 42 and 46 are formed with the micro-bodies 44 and 48 being buried in them in a dispersed state. Accordingly, Nakamoto '514 fails to teach or suggest forming a carbon nanocapsule thin film with 100 vol% of the carbon nanocapsules.

Ruoff '748 and Iwamura '397 recite a carbon nanocapsule. Ruoff '748 and Lieber '742 respectively recite a functionalized carbon nanocapsule and a functionalized carbon nanotube. However, Ruoff '748, Iwamura '397 and Lieber '742 never teach or suggest a carbon nanocapsule thin film with 100 vol% of carbon nanocapsules prepared by electroplating.

As the above description, Nakamoto '514 also fails to teach or suggest forming a carbon nanocapsule thin film with 100 vol% of carbon nanocapsules. Indeed, Nakamoto '514 needs to form the micro-bodies 44 and 48 being buried in the metal plating layers 42 and 46 in a dispersed

state to be the emitter 26 and the gate projection 28 of a field emission cold cathode device. The micro-bodies 44 and 48 of Nakamoto '514 cannot be 100 vol% in a thin film. Accordingly, one skilled in the art would not obtain a carbon nanocapsule thin film with 100 vol% of carbon nanocapsules prepared by electroplating through Nakamoto '514, Ruoff '748, Iwamura '397 and Lieber '742.

Indeed, Nakamoto '514, Ruoff '748, Iwamura '397 and Lieber '742 fail to teach or suggest the limitations of "a carbon nanocapsule thin film prepared by electroplating" and "the carbon nanocapsules are 100 vol%" of claims 1 and 14, Applicants therefore believe that claims 1 and 14 are novel and non-obvious over Nakamoto '514, Ruoff '748, Iwamura '397 and Lieber '742.

Insofar as claims 3-7, 9-12 and claims 16-20, 22-25 depend from claims 1 and 14, respectively, these claims are also allowable at least by virtue of their dependency.

CONCLUSION

In view of the above, Applicants believe that the pending application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Craig A. McRobbie, Reg. No. 42,874, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

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Respectfully submitted,

By 

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